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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,866	09/15/2003	Deepak Ayyagari	8371-156	3126

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EXAMINER	
WU, JIANYE	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,866	AYYAGARI, DEEPAK	
	Examiner	Art Unit	
	JIANYE WU	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-11,13-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-11 and 13-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/29/2008 has been entered.

Response to Amendment

2. Applicant's arguments with respect to claims 1-4, 6-11,13-19 have been considered but are moot in view of the new ground(s) of rejection, due to the fact that all independent claims have been amended.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 11** and **13** are rejected under 35 U.S.C. 102(b) as being anticipated by W. Richard Stevens, “UNIX Netwrok Programming”, 1990, (hereinafter **Stevens**).

For **Claim 11**, Stevens discloses a method of classifying data packets in a communication system, the method comprising:

analyzing an incoming data packet according to a plurality of sets of parameters (sets of socket parameters, such as *family, type, protocol*, and etc, Page 267, different types of socket has different types of parameters), wherein the sets of parameters analyzed depends upon a type of service access point (socket *type* of socket system call, Page 267) from which the data packet came, each set of parameters includes a priority (a value of socket *type,* Page 268, line 8-12), and the sets of parameters are used in analyzing the data packet according to an order of the priorities of the sets of parameters (such as parameters *family*, *type* and *protocol,* Page 267-268; or 5-tuple parameters of socket system call, page 269, line 8-9);

if the set of parameters in the data packet match a predefined set of parameters associated with connection, associating a connection (a connection is identified by socket descriptor, page 269, line 5) for the predefined set of parameters with the packet (5-tuple parameters of socket system call, page 269, line 8-9).

As to **claim 13**, Stevens discloses the method of claim 11, the method comprising transmitting parameters of the data packet to a connection manager if the parameters of the data packet do not match a predefined set of parameters (page 283, line 5-6, if (sendto(sockfd, mesg, n, 0, pcli_addr, clilen) !=n) err_dump("dg_echo: sendto error"); where the connection manager is the Operating System, the n bytes of data to be sent to specified socketfd and pcli_addr must match with the number of data byte sent).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 1-4, 14-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over W. Richard Stevens, "UNIX Netwrok Programming", 1990, (hereinafter **Stevens**) in view of Raphaeli et al (US 20030103521, hereinafter **Raphaeli**).

For **claim 1**, Stevens discloses a method of converting application data to transport data in a communication system the method comprising:

receiving application data in a protocol layer (Figure 5.28, page 240) from an application in a device through a service access point (a socket created by the socket System call, page 267, with description page 267-269, where the socket created by socket(int family, int *type*, int *protocol*) is an service access point), the service access point being one of a plurality of service access points of the protocol layer (families of socket, page 267, line 4-9 from bottom, each family provide a kind of services);

classifying the application data in a protocol layer as IP based (socket(int *family*, …) with *family* being AF_INET, page 267), or non-IP based (socket(int *family*, …) with *family* being AF_UNIX, page 267) according to the associated service access point after receiving the application data through the service access point (application data are received from the socket identified by socket descriptor, page 269, line 5 and page 260 Figure 6.1);

determining in a protocol layer if a connection exists for the application data (a connection can be created or checked by system call connect () system call, page 270, last line; the system call connection(int sockfd, struct sockaddr *servaddr, int addrlen) is described in page 270-272; for a connection-oriented connection, system calls listen() and accept() are also used to make the connection, page 272; sample code in page 273, line 9-35 shows to create a connection) in response to the classification of the application data;

transmitting the transport data across the communication system (send(), sendto(), page 274).

Stevens **is silent on** the communication system is a power line communication system.

Raphaeli teaches a power line communication system (FIG. 1, explained in [0008]) wherein a method of converting application data to transport data (application layer, [0005]) is described.

Stevens teaches IP network at network layer 3 and above, while Raphaeli discloses a specific communication system known as the power line communication

system at network layer 2. One with ordinary skill in the art would have been motivated to combine them together to provide a full network stack of the power line communication system.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Stevens with Raphaeli in order to apply IP protocol to the power line communication system.

As to **claim 2**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further teaches the method comprising automatically establishing a connection if none exists, comprising:

generating a connection specification based upon the application data and the service access point; and establishing a connection based upon the connection specification (sample code in page 273, line 9-35, which shows to establish a connection with desired configuration parameters for the connection) and

mapping the application data into transport data for that connection (using system calls send(), sendto(), recv() and recvfrom(), page 274).

As to **claim 3**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further teaches wherein receiving application data from an application further comprises receiving connection-oriented application data from the application (using system calls recv() and recvfrom(), page 274).

As to **claim 4**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further teaches wherein receiving application data further comprises:

receiving connectionless application data from the application (setting up a connectionless connection via socket() with *family* parameter being set as SOCK_DGRAM, and protocol being set UDP, then using system calls recv() and recvfrom(), page 274); and mapping the connectionless application data into transport data for a power line communication system connection (using system calls send(), sendto(), recv() and recvfrom(), page 274); wherein the power line communication system is connection-oriented (at MAC layer the power system is connection-oriented, as disclosed by Raphaeli in claim 1).

As to **claim 14**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Accessing a classification table (the table containing all values of 5-tupe, page 269, line 4-10) for a mapping of the service access point to a connection identifier (5-tupe, page 269, line 4-10); and

providing a connection associated with the connection identifier as the connection (the connection associated with the socket explained in claim 1).

As to **claim 15**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Accessing a classification table (the table containing all values of 5-tupe, page 269, line 4-10) for a mapping of the service access point and at least one of an IP address, a port number, and a type of service field to the connection identifier (5-tupe, page 269, line 4-10); and

Providing a connection associated with the connection identifier as the connection (the connection associated with the socket explained in claim 1).

As to **claim 16**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Accessing a classification table (the table containing all values of 5-tupe, page 269, line 4-10) for a mapping of the service access point, an IP address to a connection identifier, a port number to the connection identifier (5-tupe, page 269, line 4-10).

Providing a connection associated with the connection identifier as the connection (the connection associated with the socket explained in claim 1).

As to **claim 17**, Stevens and Raphaeli in combination disclose the method of claim 1, Stevens further discloses the method comprising:

Comparing the application data with at least one classifier rule for a match (comparing values of 5-tupe, page 269, line 4-10 with the configured set); and

Providing a connection associated with a matching classifier rule as the connection (the connection associated with the socket explained in claim 1).

As to **claim 18**, Stevens and Raphaeli in combination disclose the method of claim 17, Stevens further discloses the method comprising:

Comparing the application data only with classifier rule associated with the service access point (comparing the 5-tupe at the receiving end socket, page 269, line 4-10).

As to **claim 19**, Stevens and Raphaeli in combination disclose the method of claim 17, comparing the application data only at least one destination address within the

at least one classifier rule (comparing the 5-tupe at the receiving end socket, page 269, line 4-10).

Stevens and Raphaeli do not explicitly disclose that application data that is audio/visual application data.

However, what they teach applies to any kind of data.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Stevens with Raphaeli due to obvious industry expedient.

7. **Claims 6-7** and **9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrew S. Tanenbaum, "Computer Networks", Third Edition, 1996 (hereinafter **Tanenbaum**) in view of Stevens.

For **Claim 6**, Tanenbaum discloses a method of transmitting data on a network, the method comprising:

receiving an incoming data packet from an application on a device at one of a plurality of service access points of a protocol layer (SOCKET, Fig. 6-6; or Lines 1-2 of first paragraph of Section 6.2.1, Page 489, where a service access point of a protocol layer is considered as one of a plurality of sockets);

associating the packet with a connection (CONNECT, Fig. 6-6 of Page 487);

routing the packet to the connection (Lines 1-3 of first paragraph of Section 5.2, Page 345) established at an interface between the first protocol layer and a second protocol layer, wherein the second protocol layer is a lower level protocol layer; and

transmitting the data (Fig. 6-8, Page 490).

Tanenbaum does not explicitly teach classifying the data packet in a protocol layer according to the service access point and at least one rule.

Stevens teaches discloses classifying the data packet according to the service access point (Lines 7-12, Page 268; socket type defines as one of SOCK_STREAM, SOCK_DGRAM, and etc.) and at least one rule (last 3 lines of Page 268; *protocol* argument of socket is specified to use a specific protocol).

Stevens simply teaches details of the socket that is disclosed by Tanenbaum, therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to combine Tanenbaum with Stevens to classify the packet according to service point and process the packet following at least one rule due to obvious industry expedient.

As to **claim 7**, Tanenbaum and Stevens in combination disclose the method of claim 6, Tanenbaum further teaches the method comprising fragmenting the packet into smaller packets as needed based upon the packet size (Fig. 6-4, Page 485).

As to **claim 9**, Tanenbaum and Stevens in combination disclose the method of claim 6, Tanenbaum teaches classifying the data packet further comprising determining if a connection exists for the packet, and requesting a connection if a connection does not exist (Lines 3-4 of Page 487).

As to **claim 10**, Tanenbaum and Stevens in combination disclose the method of claim 6, Tanenbaum further teaches classifying the data packet further comprising analyzing a set of parameters of the data packet (parameters of IP packet header, Fig. 5-45, page 413) to determine if the parameters match those of a rule (rule to compare

parameters of a packet to a set of the socket parameters associated with the connection,), and if the parameters do match, associating the data packet with a connection identified by a connection identifier (id of the socket associated with the connection) in the rule.

8. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Andrew S. Tanenbaum, "Computer Networks", Third Edition, 1996 (hereinafter **Tanenbaum**) in view of Malkin (US 6272145 B1).

As to **claim 8**, Tanenbaum and Stevens in combination disclose the method of claim 6, the method comprising fragmenting the packet into smaller packets as needed (Fig. 6-38 in page 548).

Tanenbaum **does not** explicitly teach that the fragmenting depends upon the bandwidth of the connection.

In the same field of endeavor, Malkin discloses the fragmenting depends upon the bandwidth of the connection ("size of the different fragment will vary depending on … bandwidth of each link", col. 7, line 26-28).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to fragmenting depends upon the bandwidth of the connection for the benefit of efficiency and quality of service enhancement of network operation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jianye Wu/

Examiner, Art Unit 2616

03/12/08

/Seema S. Rao/

Supervisory Patent Examiner, Art Unit 2616